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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,855	10/22/2003	Masanobu Shigeta	21994-00064-US	4217
30678	7590	01/24/2006	EXAMINER	
CONNOLLY BOVE LODGE & HUTZ LLP			QI, ZHI QIANG	
SUITE 800				
1990 M STREET NW			ART UNIT	
WASHINGTON, DC 20036-3425			PAPER NUMBER	
			2871	

DATE MAILED: 01/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/689,855	<b>Applicant(s)</b> SHIGETA ET AL.	
	<b>Examiner</b> Mike Qi	<b>Art Unit</b> 2871	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2 and 3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2 and 3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Dec. 1, 2005 has been entered.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 2-3 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 2, recitation “. . . while simultaneously introducing oxygen gas into the filming apparatus at prescribed gas pressure so as to evaporate the material for the inorganic alignment layer onto the base” does not described in the original specification. The original specification describes that “Oxygen gas is introduced into the filming apparatus 100 through the intake valve 140 and pressure of the oxygen gas

Art Unit: 2871

is adjusted so as to orientate the pre-tilt angle  $\alpha$  towards the angle of 3 to 10 degrees. Then the inorganic alignment layer 12 or 14 is deposited on the base 11 or 15" (see paragraph 0076). Therefore, the oxygen gas is introduced into the filming apparatus, and then the pressure of the oxygen gas is adjusted so as to orientate the pre-tilt angle, and then the inorganic alignment layer is deposited. The manufacturing process cannot be simultaneously performed for the step of introducing oxygen gas and the step of adjusting the pressure of the oxygen gas. Therefore, the amended claim 2 constitutes a new matter situation.

For examination purpose, the limitations as the amended claim 2 is interpreted as introducing oxygen gas into the filming apparatus at a prescribed gas pressure so as to evaporate the material for the inorganic alignment layer on the base.

Claim 3 is dependent on the claim 2, so that the dependent claim has the deficiency set forth above.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,426,786 B1 (Lu et al) in view of US 5,030,322 (Shimada et al).

Regarding claims 2 and 3, Lu discloses (col.4, line 19 – col.5, line 58; col.1, line

Art Unit: 2871

24 – col.2, line 15; Figs.1-3) a method of forming an alignment layer of a liquid crystal display cell comprising:

- displacing a base (substrate 28) in a filming apparatus (thin film deposition system 20) used for forming an angle-deposited film to accomplish the desired alignment (col.5, lines 9-22; Fig.2);
- conducting a vapor stream of a material for an inorganic alignment layer (silicon dioxide) displaced in the filming apparatus (thin film deposition system 20) so as to enter into the base (substrate 28) at an angle (evaporation angle) of 30 to 50 degree (col.5, lines 23-58; Fig.2);
- forming the inorganic alignment layer on the base so as to conduct a pre-tilt angle of liquid crystals to be about 0.2 to about 10 degree.

Although Lu does not explicitly disclose the evaporation angle is 40 to 60 degree and the pre-tilt angle is 3 to 10 degree, the ranges as shown in Lu (evaporation angle of 30 to 50 degree and pre-tilt angle of 0.2 to 10 degree) are close and overlap. In the case where the claimed ranges “overlap or lie inside range disclosed by the prior art” a prima facie case of obviousness exists. (MPEP 2144.05. I.)

Lu does not explicitly disclose that introducing oxygen gas into the filming apparatus at a prescribed gas pressure.

Shimada discloses a method of forming orientation film in which the gas feeding is designed to introduce oxygen as a desired gas (see col.6, lines 2-5; Fig.5), and adjust the gas pressure such as  $5 \times 10^{-4}$  torr, that is a prescribed gas pressure (see col.5, line 64 – col.6, line 2; Fig.5), and as a general available knowledge, the ordinary skilled in

Art Unit: 2871

the art would adjust it to a proper gas pressure according to the operation conditions such as  $6 \times 10^{-3}$  to  $3 \times 10^{-2}$  Pa so as to obtain a desired result. Shimada also indicates that such method easily control the thickness of the film (see col.6, line 54 – col.7, line 8).

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the alignment layer forming method of Lu with the teachings of using oxygen gas as taught by Shimada, since the skilled in the art would be motivated for easily control the thickness of the film so as to obtain a desired result (see col.6, line 54 – col.7, line 8).

### ***Response to Arguments***

3. Applicant's arguments filed on Dec.1, 2005 have been fully considered but they are not persuasive.

1) The reference Shimada discloses a method of forming orientation film in which the gas feeding is designed to introduce oxygen as a desired gas (see col.6, lines 2-5; Fig.5), and adjust the gas pressure such as  $5 \times 10^{-4}$  torr, that is a prescribed gas pressure (see col.5, line 64 – col.6, line 2; Fig.5), and as a general available knowledge, the ordinary skilled in the art would adjust it to a proper gas pressure according to the operation conditions such as  $6 \times 10^{-3}$  to  $3 \times 10^{-2}$  Pa so as to obtain a desired result. Shimada also indicates that such method easily control the thickness of the film (see col.6, line 54 – col.7, line 8).

Art Unit: 2871

***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299.

The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Mike Qi  
Patent Examiner  
January 17, 2006